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EARLY MAN IN AMERICA.

By EDWIN SWIFT BALCH.

(Read April 13, 1917.)

One hundred years ago, only one man—one may say without exaggeration—knew that there had once been a stone age in Europe. This was John Frere, who as far back as 1797, collected many flint spear heads near Hoxne in southern England and recognized their antiquity and their human origin. It was not until the first half of the nineteenth century that two or three other men realized that certain stones which they found in digging had been man-handled and used as weapons or tools. One of these men was Dr. Schmerling of Liège, who in 1833 published a paper describing his investigations in the cave of Engis, where he found worked flint implements, weapons and ornaments of ivory and bone, and fossils of extinct animals together with a fossil human skull and other fragments of the skeleton. Another man, the Rev. J. MacEnery, between 1824 and 1841, obtained from that most interesting cavern Kent's Hole near Torquay in southern England, numerous artifacts associated with the bones of extinct animals. The scientific world of those days, however, was unable to appreciate that the human race could possibly date back to the time indicated by the extinct animal fossils found in the same strata as the flint artifacts, so Frere's, Schmerling's and MacEnery's discoveries were rejected and temporarily forgotten.

In the early part of the nineteenth century also, however, there lived near Amiens a Frenchman, Boucher de Perthes, who was molded out of most combative clay. He started digging in the gravels of the Somme Valley and in 1832 he noticed in the gravel pits some curiously shaped stones which he finally recognized must have been shaped by man. And in the year 1847, he said so in a big volume the very title of which, "*Antiquités Celtiques et Antédiluvienues*," shows how hesitatingly he was groping at a subject at

that time almost under the ban of religion as well as of science. For this he was told, to put it in the words with which we now greet discoverers, that he had handed a gold brick to the public. But this did not upset Boucher de Perthes's equanimity one iota. He was not only combative, but he was pertinacious and tenacious. He continued his researches and ten years later he brought out another big volume. Thereupon a few other scientists woke up and took notice and went to the Somme Valley to dig. And they also found flint artifacts in situ and in very short order it was seen that Boucher de Perthes was right in his contentions. And now Boucher de Perthes is universally recognized as the man who forced recognition of Paleolithic man in Europe on a recalcitrant world.

One hundred years ago, everybody in America—one may say without much exaggeration—knew that there was even then an American stone age. And some doubtless had this knowledge drilled into them by finding a stone-headed arrow sticking in their ribs. And they therefore were sure that stones were fashioned into weapons and that they were used by our so-called Indians and were not prehistoric. But history repeats itself. Just as Dr. Schmerling had discovered a fossilized man in Belgium, so did Dr. Lund, a Dane, report finding in 1844 in a cavern in the province of Minas Geraes, Brazil, some fossilized human bones together with bones of extinct animals. He concluded that South American man extended "far back into historic times, and probably even beyond these into geologic times."¹ The evidence presented by Dr. Lund, however, was not so absolutely convincing that the human bones were cotemporaneous with those of the extinct animals for the scientific world of that day, any more than in the cases of Frere, Schmerling and MacEnery, to be willing to accept the possibility of such antiquity for the human race, so Dr. Lund's discovery also was temporarily relegated to the limbo of oblivion.

But there was a man in North America who had the same characteristics as Boucher de Perthes: the faculty of observation, the ability to reason from his observations and the pertinacity to stick to them in the face of any and all opposition. This was Dr. Charles

¹ Aleš Hrdlicka, "Early Man in South America," p. 165.

Conrad Abbott, who lived on his family homestead near Trenton, New Jersey. More than fifty years ago he began to collect the relics of the past in the neighborhood. He noticed that some of the stone artifacts were much rougher than others and he reasoned from this that therefore they were older. And in a paper "The Stone Age in New Jersey," published in 1872,² he announced his belief that these ruder artifacts were paleolithic. He says of them either that there were execrable workmen among the tool-makers or else that the age of the crude specimens far exceeds that of the finely wrought relics. He discovered also that in every class of relics there is always a gradation from poor or primitive to good or elaborate, indicating a lapse of years from ancient to modern times, from a paleolithic to a neolithic age. He further surmised that the earlier implements were so rude that the people who fashioned them may well have been too primitive to wander from another continent, and therefore that the first inhabitants along our Atlantic coast and inland may have been autochthones. And thereupon Abbott was promptly told that he also had handed a gold brick to the public.

But Abbott, like Boucher de Perthes, weathered the storm and continued his researches and nine years later, in 1881, he published a book "Primitive Industry," based on his rambles over fields and along the banks of the Delaware and on his patient observations in railroad cuttings and canal excavations. And in this book he was able to announce³ that there are three stages of stone culture in the Delaware Valley. Taking these downwards or backwards they are as follows: (1) In the surface soil there is a polished stone neolithic stage with jasper and quartz implements of the historic Indian and a few rough argillite implements; (2) some distance below this, in alluvial deposits, generally of yellow sand, there is a stage of rough argillite implements; (3) a good distance below this again, in the Trenton gravels, there is a stage where there are a few very rough argillite paleolithic implements.

Now the difficulty of seeing these facts in the field at Trenton is enormous. I have visited Abbott many times at Trenton, and have rambled over his ancestral acres and along the banks of the

² *American Naturalist*, 1872, Vol. 6, p. 146.

³ Page 517.

Delaware with him and have thus had the advantage of having him point out to me himself the three horizons. I have picked up numerous Indian implements on the surface soil, perhaps the best of which was a large arrowhead or spearhead which I detected in Abbott's asparagus bed. And I have dug also into the second stratum, the Yellow Sand Drift, and found a couple of rough argillite flakes myself. An implement in the lower gravel horizon, however, I was never lucky enough to find in situ, for these are exceedingly rare and only reward a searcher after many long days. But I cannot but marvel how anyone ever traced single-handed these three archeological horizons. The two lower ones are so modest, so retiring, that even when pointed out to you, it is hard to believe they are there. And how Dr. Abbott, to whom they were not pointed out, ever was able to recognize their existence and point them out to others, seems to me the most wonderful discovery in the realm of American archeology.

The state of knowledge, it will be noticed, was precisely the opposite in Europe at the time of the discovery of paleolithic stone implements there, from what it was in America at the time of the discovery of paleolithic stone implements here. In Europe nobody knew anything of a European stone age. In historic times, the Greeks, the Romans, the Gauls, the Brits, had all used bronze or iron weapons, but not stone weapons and implements. And the result was that as soon as Boucher de Perthes had been proved correct in his assertions that the flints he found were weapons and implements, everyone knew definitely that they were prehistoric: they could not be anything else. In America on the contrary, everyone knew that there was an American stone age, and that they were still in it. And the result was that most archeologists in America asserted for years after Abbott's discovery, that all the stone implements found here are neolithic and historic. Nevertheless Abbott was correct in his assertions and it may be truly said of him that he is the Boucher de Perthes of America, the man who has forced on science the recognition that there is a Paleolithic American man.

Some years after Dr. Abbott's discovery a new worker appeared in the Trenton district. This was Mr. Ernest Volk. He had come

over as a young man from Germany and settled at Trenton. He became interested in Abbott's discoveries and started in to verify them for himself. In 1889, he began to work under the general direction of Mr. F. W. Putnam for the Peabody Museum of Harvard University and he has kept up his researches to the present time. And his patient, persevering labors for so many years have absolutely confirmed all of Abbott's contentions. Working in the fields, and watching excavations in the Delaware River channel, in the sewers of Trenton and other places, Volk has independently proved that there are three stages of culture at Trenton: on top a historic Indian stage with many jasper and some argillite implements, and some of these implements polished and so placing the upper horizon in the Neolithic period; a middle horizon in the Yellow Sand Drift with only some chipped argillite implements, thus placing this stage in a paleolithic stage of culture; and a much lower horizon connected with the Glacial gravel and bearing a few chipped argillite implements and some rough quartzite ones, the latter especially showing an early paleolithic stage of culture.⁴

Until recently Abbott's and Volk's results were accepted by the minority and were rejected by the majority of American archeologists. Now the position taken by so many leading American archeologists is, however, perhaps not extraordinary. In the first place they started from the preconceived notion that all the early inhabitants of this country were historic Indians. And it is hard to throw off a belief which is justified by the most apparent facts endorsing it unless overwhelming evidence is produced against it. In the next place, none of these archeologists took the only means possible of verifying for oneself the evidence presented at Trenton, namely a long investigation, patiently carried out for weeks and months on the spot. They flitted in and out, something like, as you will remember, the guests did who tried to pull out the sword from the tree in Richard Wagner's *Walküre*. "*Gäste kamen und gäste gingen*" but the sword remained in the tree just the same.

Another cause also influenced strongly American archeologists

⁴ Ernest Volk, "The Archeology of the Delaware Valley," Papers of the Peabody Museum of American Archeology and Ethnology, Harvard University, 1911.

from accepting Abbott's and Volk's results. And this was the human remains found in various parts of North and South America in Pleistocene deposits, which human remains always seemed to be historic Indian. Besides the one find made by Dr. Lund in eastern Brazil several discoveries of the same kind were made in North America. One, for instance, was made in 1846 at Natchez, Mississippi, by Dr. Dickeson and was turned down by Sir Charles Lyell. Another was made in 1902 at Lansing, Kansas. A third was made in 1906 at Long Hill near Omaha, Nebraska. Now all these bones and especially the skulls showed almost exactly the characteristics of historic Indian remains. And it was argued from this that since these remains showed no evolution in the type therefore they could not be really old. For it must be remembered that the persistence of type has only been accepted recently. It was indeed believed for a number of years that the modern European had probably evolved directly from the much lower type of Moustérien Neanderthal man. Now, however, from numerous discoveries at Moulin Quignon, at Galley Hill, at the Olmo, at Ipswich, and other places, it is known that the modern European type dates back to the Chelléen and Acheuléen horizons of the early Paleolithic, while the Neanderthal man's ancestor has been traced in an earlier, perhaps Eolithic, horizon at Heidelberg. But since the reasons formerly influencing anthropologists to reject as genuine the finds of human remains in the American Pleistocene can no longer be held to be valid, it can now be affirmed that it is not only possible but nearly certain that the type of the historic Indian comes down in America through tens of thousands of years, possibly through the entire Pleistocene epoch.

For many years the status of Early Man in America remained thus *in statu quo*, Abbott and Volk standing squarely by their guns and occasionally firing the hot shot of facts at other archeologists, the minority of whom accepted the facts, while the majority denied them. And it was only about five years ago that confirmation came to Abbott and Volk, and it came first from an unexpected quarter, namely Kansas.

About the beginning of the twentieth century, Mr. J. V. Brower

made a large collection of artifacts in Kansas immediately south of the Kansas glacial moraine. Mr. Brower discerned that some of these artifacts were unusual in character, but he did not follow up the matter and died soon after. Then his collection was placed in the Minnesota Historical Society at St. Paul, Minnesota, and fortunately it attracted the attention of the late Dr. H. N. Winchell, who devoted the last years of his life to its study. He established an important point in regard to the paleoliths of Kansas, namely that some of them closely resemble the Chelléen implements of Europe, possibly even some of the pre-Chelléen implements. Without being identical, these implements show that man went through a Chelléen stage of culture in Kansas at an early time, perhaps even before the Kansas Glacial period.

This is a notable and important fact. For the European Chelléen dates to far back, quite probably to a hundred and fifty or two hundred thousand years ago. And the Chelléen implements are about the earliest in which man shows a distinct sense of form. This sense of form and the technic of chipping stone, man combined for the first time in the next stage of culture, and taking certain curiously shaped natural flints, Acheuléen man chipped them into a semblance of the form of certain animals. Such stones, found first by Boucher de Perthes in the Valley of the Somme, have been found also within a few years by Mr. W. N. Newton in the valley of the Thames. And considering that the Acheuléen horizon is almost surely more than a hundred thousand years old, these stones carry back the beginnings of art to that time. The wonderful drawings and carvings of the later Paleolithic are clearly the continuation of these Acheuléen attempts at embryo fine art, and they also are truly the combination of the technic of chipping flints into implements and of an acute sense of form. But it is possibly not far out of the way, to date the birth of the fine arts at about 125,000 years B. C.

But Winchell's greatest contribution to our knowledge of stone implements is unquestionably his study of their patination, and in this respect he made an advance even over any European archeologist. He found that implements varied in their patination or weathering, that some were more patinated than others, and as he went deeper

into their study, he found that some implements offered two or even three sorts of patination. And he finally concluded that some implements had been chipped and then perhaps left lying lost for thousands of years until they were found by some later Early man and rechipped into a better form and then lost again to be picked up finally for one of our museums. And by his study of patination principally, Winchell was led to the conclusion that there were at least four successive peoples responsible for the artifacts of Kansas, and he divided the cultures backward into a Neolithic, an early Neolithic, a Paleolithic and an early Paleolithic, and toward the end of his work he even suggests it may be necessary to divide these cultures still further.⁵

Then came a confirmation of Abbott's and Volk's results at Trenton in regard to the Paleolithic man of the Yellow Drift horizon. Three years ago the American Museum of Natural History sent a commission of several of their staff, Dr. Wissler, Dr. Spiers and others to Trenton. Dr. Abbott gave them the privilege of digging on his estate. And having unlimited resources they dug an immense, most educational, trench across the fields and every shovel full of dirt was passed through a sieve. And their results showed that Abbott was perfectly right in his contentions. On top they found the remains of the Leni Lenape Indians in abundance: pottery, bone, shell and copper implements, polished and engraved stone objects, notched and grooved sinkers, pitted and pitless hammerstones, some large chipped blades and many different forms of arrow points. In the Yellow Sand horizon, on the contrary, there were but few forms of artifacts, some pitless hammerstones, some implements of a large blade type, and only a few forms of chipped stone arrow points. In other words there is a complex culture preceded by a simple culture. And this simple culture is homogeneous and cannot be confused with any other.⁶

Finally within the last two years there was made a discovery of

⁵ H. N. Winchell, "The Weathering of Aboriginal Stone Artifacts," the Minnesota Historical Society, 1913.

⁶ Leslie Spier, "New Data on the Trenton Argillite Culture," *American Anthropologist*, April-June, 1916.

Clark Wissler, "The Application of Statistical Methods to the Data on the Trenton Argillite Culture," *American Anthropologist*, April-June, 1916.

the utmost importance at Vero, Florida. Under the direction of Mr. E. H. Sellards, State Geologist of Florida, the excavation of a new canal was carefully watched, and in a Pleistocene horizon containing bones of numerous extinct Pleistocene mammals, mastodon, *Elephas columbi*, *Equus leidy*, *Megalonyx* and others, there were also found in several places human bones in the same state of fossilization as the bones of the extinct animals. For two reasons therefore, association in the same horizon and fossilization to the same degree, it is impossible to deny that a Pleistocene man existed in Florida. And he was also certainly a Paleolithic man, for some chipped flint flakes were found with the human bones. Most notable of all, however, a bone was found on which there were some engraved marks which suggest vaguely the marks of the Azilien horizon in southern France and on which also there was a small crude drawing, the first apparently from Pleistocene times found in America. This drawing, it seems to me, is one of the most important archeological finds ever made in the history of man and the history of art.⁷

This drawing seems to be an attempt to delineate a human head and bust. What is specially interesting about it is that, in the first place, it is decidedly rectilinear and not curvilinear. That is also the character of historic Indian art and slight as this drawing is, it certainly suggests that it was done by some one with historic American Indian characteristics, which points to the draughtsman being an ancestor of our present Indians. And if this drawing is genuinely Pleistocene, and if it is, as it seems to be, rudimentary American Indian art, there is almost a certainty that we shall never find on the American continent any art like that of the later European Paleolithic. In regard to the age of this drawing one may perhaps theorize somewhat as follows. The fossils found in the same horizon as this drawing are certainly Pleistocene. Now although we have figure-stone flints, that is embryo sculpture from the Acheuléen, the earliest drawings so far known to us are from the Aurignacien. The probability therefore is that this drawing

⁷ E. H. Sellards, "Human Remains and Associated Fossils from the Pleistocene of Florida," Eighth Annual Report of the Florida State Geological Survey, 1916.

does not antedate the Aurignacien and may coincide with the Solutréen or Magdalénéen, a supposition which may also be considered to hold good of the surrounding fossils. But although this drawing is only a tiny relic, yet if it is genuinely Pleistocene, it opens up vistas hitherto hermetically sealed, for one must logically conclude that drawing may have begun as early in America as in Europe.

The discoveries in Kansas and in Florida coming on top of the discoveries in New Jersey, prove beyond all cavil that there are several horizons of culture in America. There are certainly three horizons at Trenton, there are certainly two at Vero, there are probably four stages, if not horizons, of culture in Kansas. Now comes an important question, do these horizons coincide? The upper or historic Indian neolithic stage is undoubtedly the same everywhere. But does the lower horizon at Vero coincide with the lower horizon at Trenton and are they synchronous with the Chelléen culture of Kansas?

The progress of prehistoric archeology in Europe has been largely due to recognizing the sequence of one horizon after another. These horizons, identified by their fossils and their stone implements, are, in all cases, found in their proper order of position above or below each other. There may be many or few of these horizons together but in every case the later horizons are above the earlier ones. If one designates the horizons in Europe by numbers, and numbers them from the top downwards, 1, 2, 3, 4, 5, 6, 7, 8, 9, etc., horizon 3 is always above horizon 5, horizon 5 is always above horizon 7 and so forth.

In America we know positively that there are three horizons at Trenton. If we take these as the starting point and number them downwards 1, 2, 3, we can safely say that horizon 1, that of the Neolithic historic Indian, extends, with local variations of culture, throughout the whole of North America and perhaps, although this is less certain, of South America. But of horizon 2 and horizon 3 we do not yet know whether they coincide with any of the lower horizons or stages of culture in other places in America whose existence is equally definitely established. We cannot say that the lower horizon at Trenton coincides with the lower horizon at Vero, nor can we say that either of them coincide with the Chelléen stage

of Kansas. May be they do, but may be they antedate or postdate one another. Instead of three horizons, it may be that there are five horizons already discovered in America. And, it seems to me, this straightening out of the sequence and relative time of the horizons is the most immediate problem to attend to in connection with early man in America.

My own beliefs and opinions about the present status of knowledge about early man in America may now be summed up as follows. Early man was here. He lived during at least a part of the Pleistocene period for tens of thousands of years south of the Glacial moraines. He probably went through an Eolithic period and certainly through a Chelléen period in some places and therefore was truly a Paleolithic man. He may have made rudimentary fine art. Paleolithic American man was the ancestor of the Neolithic historic Indian and although less advanced in culture much like his descendant in anthropological characteristics. Whether he was an autochthone in America or whether he came from some other place and if so when, we do not as yet know positively, although his affiliations seem to be to the west. And it is to four men above all others that we owe our knowledge: Abbott, the discoverer of paleolithic implements and horizons, Volk, the corroborator, Lund, the first finder of probably Paleolithic bones, and Winchell, the investigator of patination. These four men will always remain stars in American archeology and especially so Dr. Abbott, who, by following Voltaire's famous dictum "*Il faut cultiver son jardin*," will go down to history as an immortal.